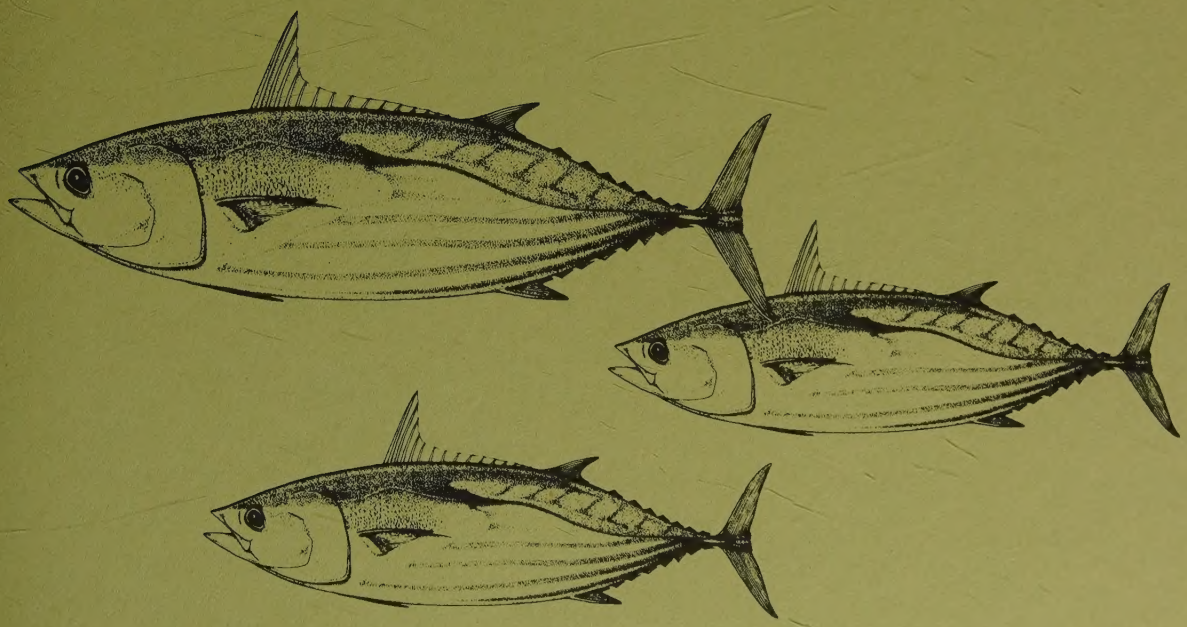
SEPTEMBER 1980
No. 9

FISHING INFORMATION

Southwest Fisheries Center-La Jolla, California



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SOUTHWEST FISHERIES CENTER
8604 LA JOLLA SHORES DRIVE - P. O. BOX 271
LA JOLLA, CALIFORNIA 92037

FISHING INFORMATION

SEPTEMBER 1980, No. 9

EDITOR: JAMES A. RENNER

I. Barrett, Director, SOUTHWEST FISHERIES CENTER
J. Carr, Deputy Director

PREFACE

This publication, Fishing Information, appears monthly and contains 1) fishery advisory information, 2) a narrative description of pertinent surface temperature conditions, 3) charts of winds and pressures for the eastern North Pacific, 4) charts of sea surface temperature for the North Pacific and eastern tropical Pacific, and 5) charts of subsurface temperature structure in the eastern North Pacific.

A supplement to Fishing Information appears at 15-day intervals throughout the year. It contains a chart of sea surface temperature (contoured at $2^{o}F$ ($1^{o}C$) intervals) from Baja California to Vancouver Island out to about $135^{o}W$. Special bulletins are published in conjunction with the 15-day sea surface temperature charts which include short-term projections of albacore distribution and locations of productive fishing areas, information on oceanographic and atmospheric conditions, and other information as is appropriate during the albacore fishing season.

NOTICE TO SUBSCRIBERS

Publication of FISHING INFORMATION and its 15-day supplements by the National Marine Fisheries Service will cease with the December 1980 issue. Beginning with the January 1981 issue, responsibility for the preparation of the types of charts currently published in Fishing Information will be transferred to the National Weather Service and the National Environmental Satellite Service. Scientists of the Fishing Information staff are currently working with National Weather Service and National Environmental Satellite Service personnel to ensure that the follow-on publication to Fishing Information meets user needs and that a smooth transition takes place.

We here at the National Marine Fisheries Service wish to thank you for your continued interest in, and support for, FISHING INFORMATION and urge you to lend similar support to the new National Weather Service/National Environmental Satellite Service publication.

To cancel delivery of this publication in the event you no longer need to receive it, or to change the delivery address if you are moving but still need to receive it, please notify us by writing: Editor, Fishing Information, National Marine Fisheries Service, Southwest Fisheries Center, P. O. Box 271, La Jolla, California 92038.

Submitted for publication - November 17, 1980

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ENVIRONMENTAL CHARTS ANALYZED BY:

F. Miller (Figures 8 and 9)
F. Miller (Figures 1, 2, 3, 4, 5, 6, 7, and 15-day Supplement)

TECHNICAL EDITOR:

R. Allen

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Fisheries and Oceans Canada, West Vancouver Laboratory,
British Columbia, by L. F. Giovando from observations by:
  J. Redhead at Langara Island Light
  H. Ewen at Cape St. James Light
  R. W. Moe at Kains Island Light
  M. V. Stewart at Amphitrite Point Light

Scripps Institution of Oceanography, La Jolla, California

Sea Surface Temperature and Environmental Conditions

Forrest R. Miller

Eastern North Pacific

During September, the Aleutian low pressure system usually intensifies over western Alaska. The eastern Pacific high pressure system is normally weaker than in August and is usually centered near 37°N, 142°W (Figure 1). The most active storm tracks, with associated high winds and heavy clouds, normaly move across the north Pacific between 45°N and 50°N. Ocean mixing and surface cooling are greater along storm paths here than in the central eastern Pacific where sea surface temperatures (SST) normally increase over a large region extending more than 700 miles outward from the eastern Pacific high pressure center.

In September 1980, the eastern Pacific high pressure center was near 34°N, 145°W, with central pressures 2 to 4 millibars above normal (Figure 2). A high pressure ridge extended northeastward over British Columbia and Washington from this center. The Aleutian low pressure system moved eastward from its position in July to 55°N, 170°W. This system, however, has been weak for the past three months; therefore, the Pacific high was the dominant weather system south of 50°N. During this time, strong northerly surface winds persisted for long periods off the U. S. west coast and along the southern periphery of the high pressure system.

The SST pattern (Figure 3) continued to reflect warming at above-seasonal rates where the isotherms bulge northward from 40°N to 50°N between 140°W and 165°W. In this part of the north Pacific, SST anomalies were more than 1°C above normal (Figure 5). During September 1980, SST's in this area were 2° to 3°C greater than those in September 1979 (Figure 7). The large positive anomalies and positive differences from September 1979 resulted primarily from the dominance of the high pressure system, and from southerly surface winds west of 150°W and north of 35°N which transported warm water northeastward toward the Gulf of Alaska. Light winds and below-normal cloud cover in the high center also reduced ocean wind mixing and increased solar heating at the sea surface.

A broad band of negative SST anomalies has persisted for the past three months along the eastern and southern boundaries of the eastern Pacific high pressure system (Figure 5). SST's more than 1°C below normal extended along the U. S. west coast and southwestward to the Hawaiian Islands. During September 1979, SST's were 2° to 3°C warmer than in September 1980, because the high pressure center was near its long-term mean position a year ago (Figure 7). Coastal upwelling and extensive ocean wind mixing were the principle ocean processes that produced the large area of negative anomalies this month along the west coast and offshore south of 40°N.

Albacore fishing during September 1980 did not improve over August because of frequent rough seas and strong, northerly surface winds from Washington to northern California. The best fishing weather and albacore catches occurred off central California between Fort Bragg and Morro Bay, especially during the last half of the month.

Western North Pacific

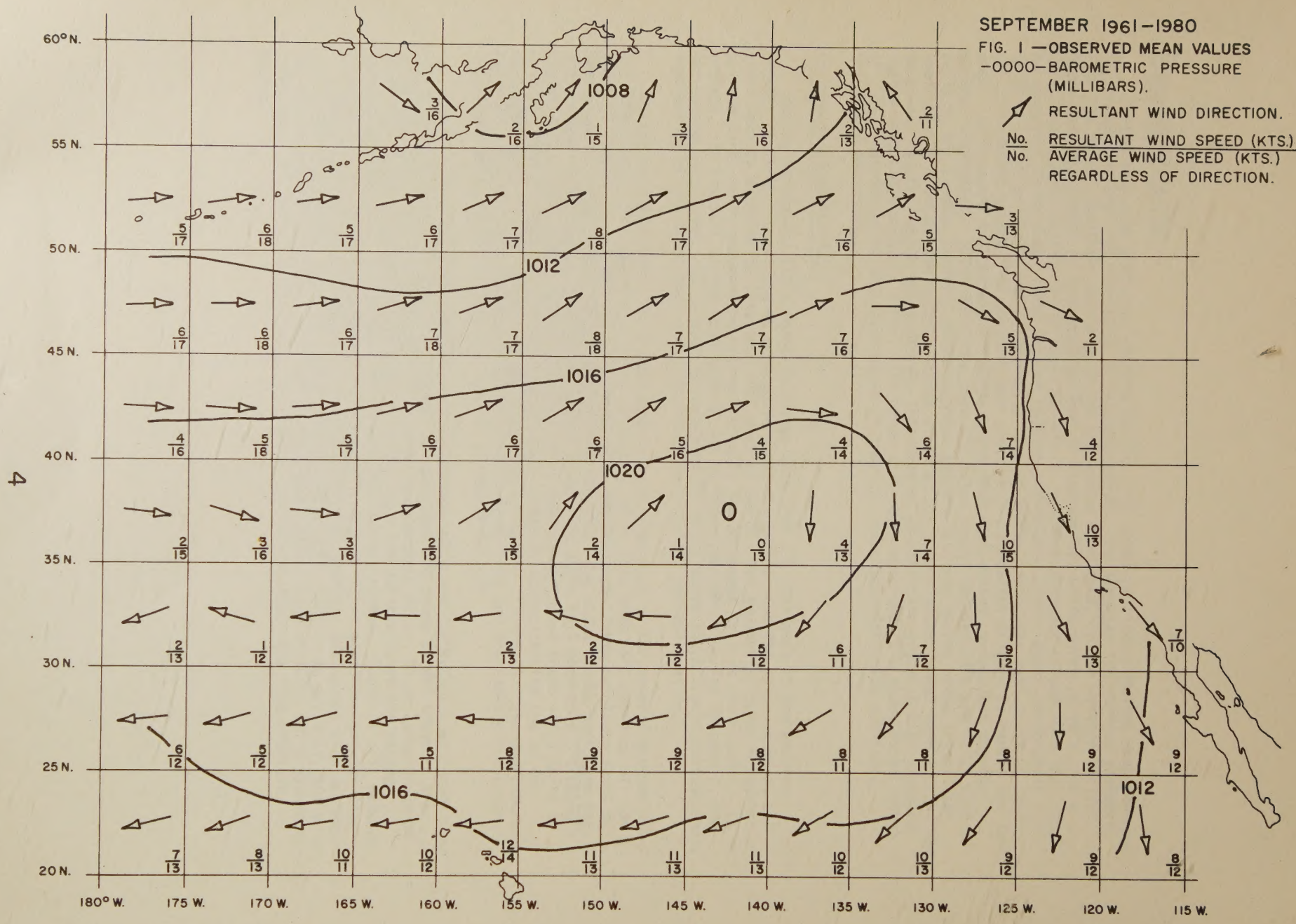
During September 1980, the western Pacific high pressure ridge remained weak and near its normal position for the third consecutive month. The Aleutian low shifted eastward from its August position, but this system was weaker than usual in the western Pacific. There were apparently no prolonged periods of high surface winds north of 40°N. As a result, the north Pacific Ocean front (Figure 4) was more diffused around 40°N than usual. An exception to this was found east of Hokaido and Honshu, Japan, where north-south SST gradients were more pronounced than those east of 150°E. Along the east coast of Japan, the alternating patterns of positive and negative SST anomalies (Figure 6) marked the zone where the Kuroshio and Oyashio Currents, along with wind mixing, maintained stronger frontal boundaries. SST's were more than 1°C below normal between 35°N and 45°N, east of 160°E in the Central Pacific, where tropical and mid-latitude storms often intensified south of the Aleutian low center. South of 30°N, SST's were above normal over most of the southwest Pacific, which was under the influence of an extensive but weak high pressure system with light easterly winds. The areas with SST's more than 1°C above normal south of 25°N, contributed to the development of tropical storm activity which continued throughout the month.

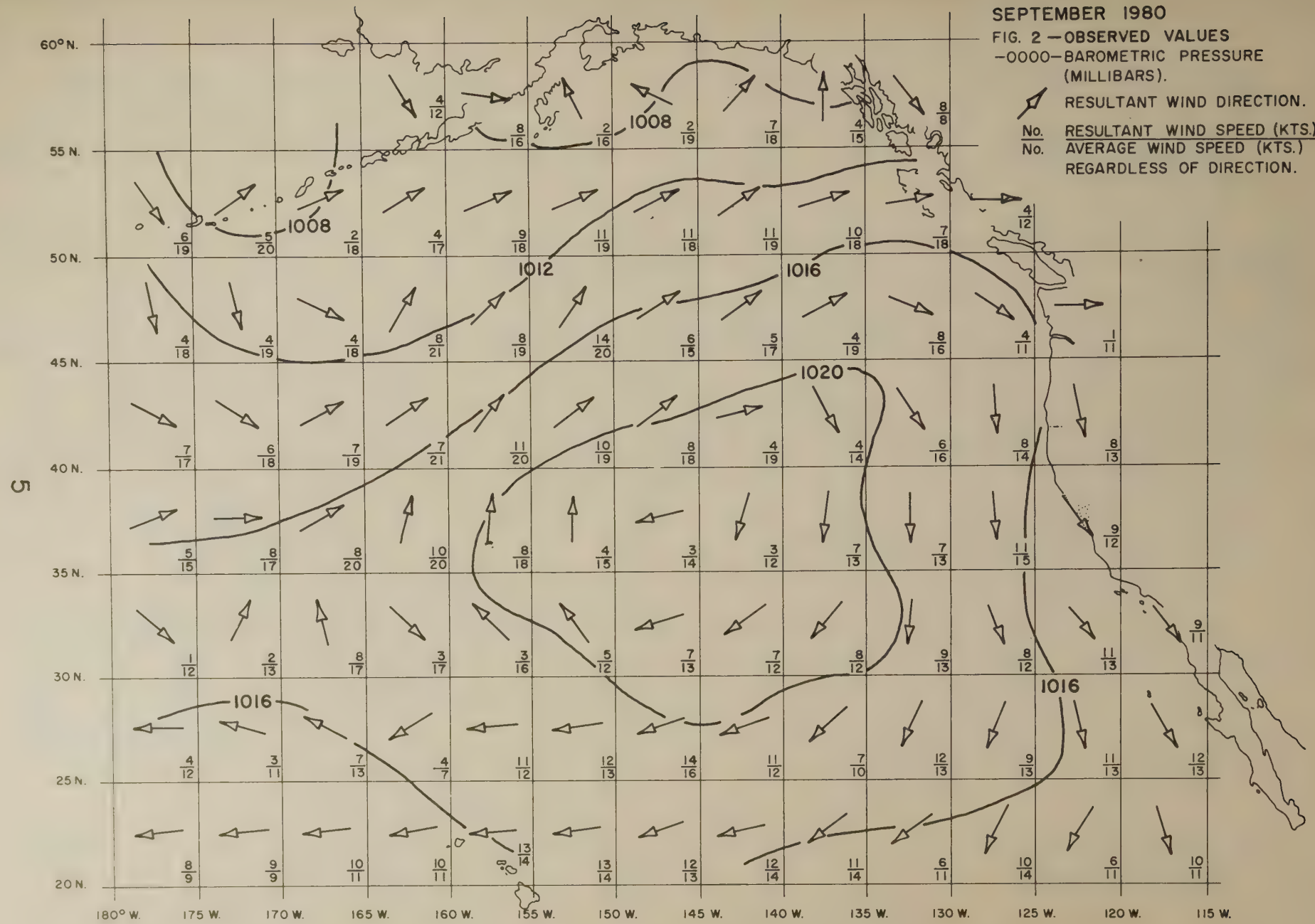
Eastern Tropical Pacific

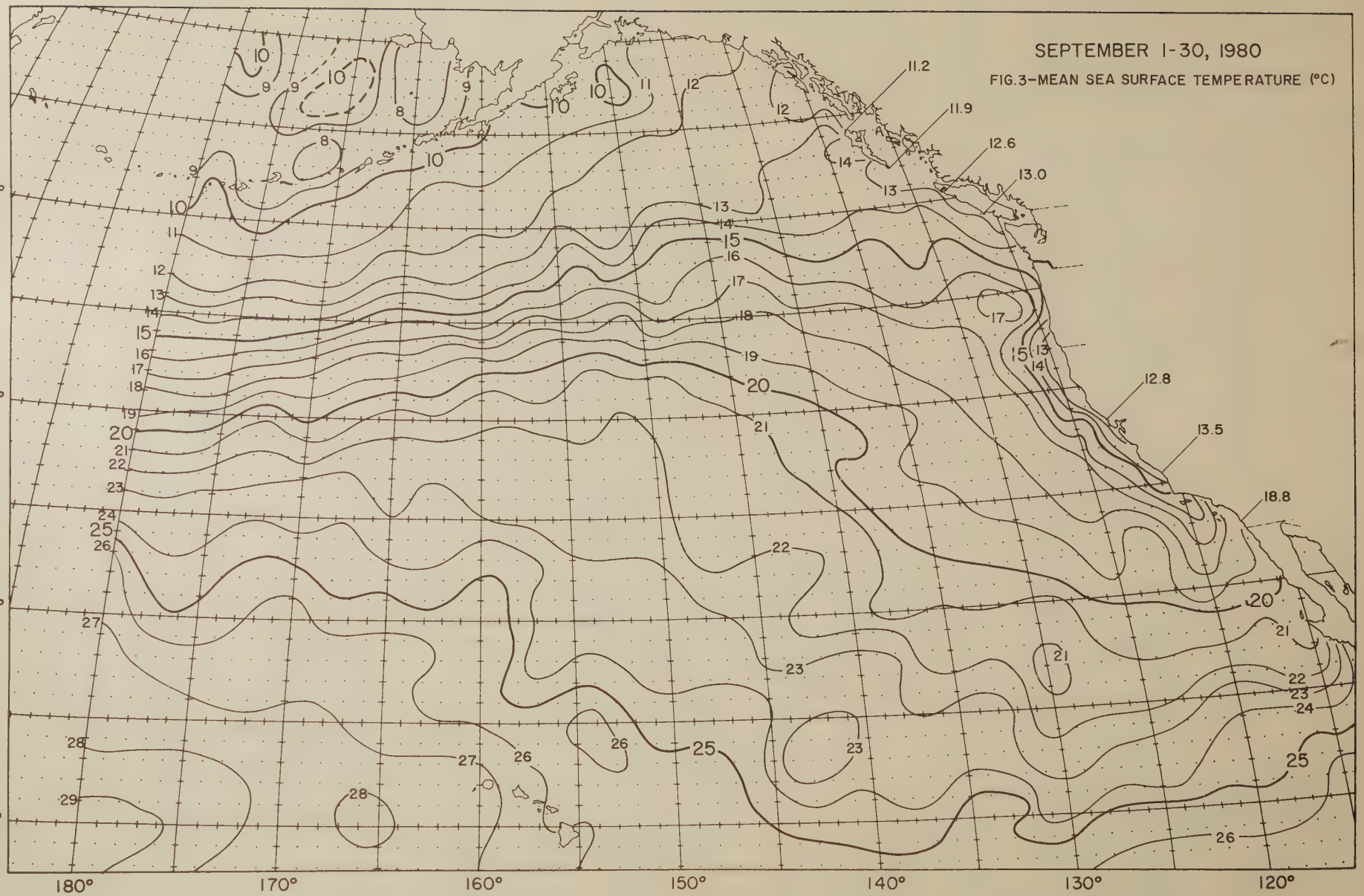
During September, SST's normally change less than 1°C over most of the eastern tropical Pacific. Upwelling is pronounced along the equator and the coast of Peru, and SST's usually decrease to less than 22°C east of 120°W. The equatorial ocean front has a maximum north-south temperature gradient between the Galapagos Islands and Ecuador. On an average, six tropical storms developed in the northern hemisphere during September, and two became hurricanes. SST's usually decreased 2° to 4°C along storm tracks because heavy wind mixing of the ocean and extensive cloud cover inhibit surface heating.

During September 1980, SST's were above normal over most of the tropics between 5°N and 20°N (Figure 9). However, several areas with SST's less than 28°C appeared off the coast of Mexico and Central America (Figure 8). Two tropical storms developed south of Mexico and moved northwest through the fishing grounds. One storm became Hurricane Kay. These storms caused heavy wind mixing of the ocean, and SST's fell more than 1°C below normal along storm paths. During the past three months, northeast trade winds north of 20°N and east of 140°W were weakened by frequent tropical storm activity and by the northward shift of the eastern Pacific high pressure center (Figure 2). The above-normal SST's from 5°N to 10°N were associated with diminished winds and decreased cloud cover before and after tropical storm passages to the north of 10°N.

In the equatorial zone from 5°N to 5°S, between 100°W and 150°W, SST's were more than 1°C below normal (Figure 9). SST's were also more than 1°C below normal south of the Galapagos Islands and off the coasts of Ecuador and northern Peru. These large areas of colder SST's were associated with upwelling of colder sub-surface water and strong southeast winds, along the equator and in the Peru Current region. South of 5°S, between 95°W and 130°W, three areas experienced warm SST's with positive anomalies greater than 1°C (Figure 9). During the last half of September, the southern hemisphere high pressure center shifted westward from its usual position (near 30°S, 90°W). As a result, SST's in the Peru Current were cooled less than during August 1980. West of 90°W, SST's warmed up under the influence of reduced cloud cover and light winds around the high pressure system.

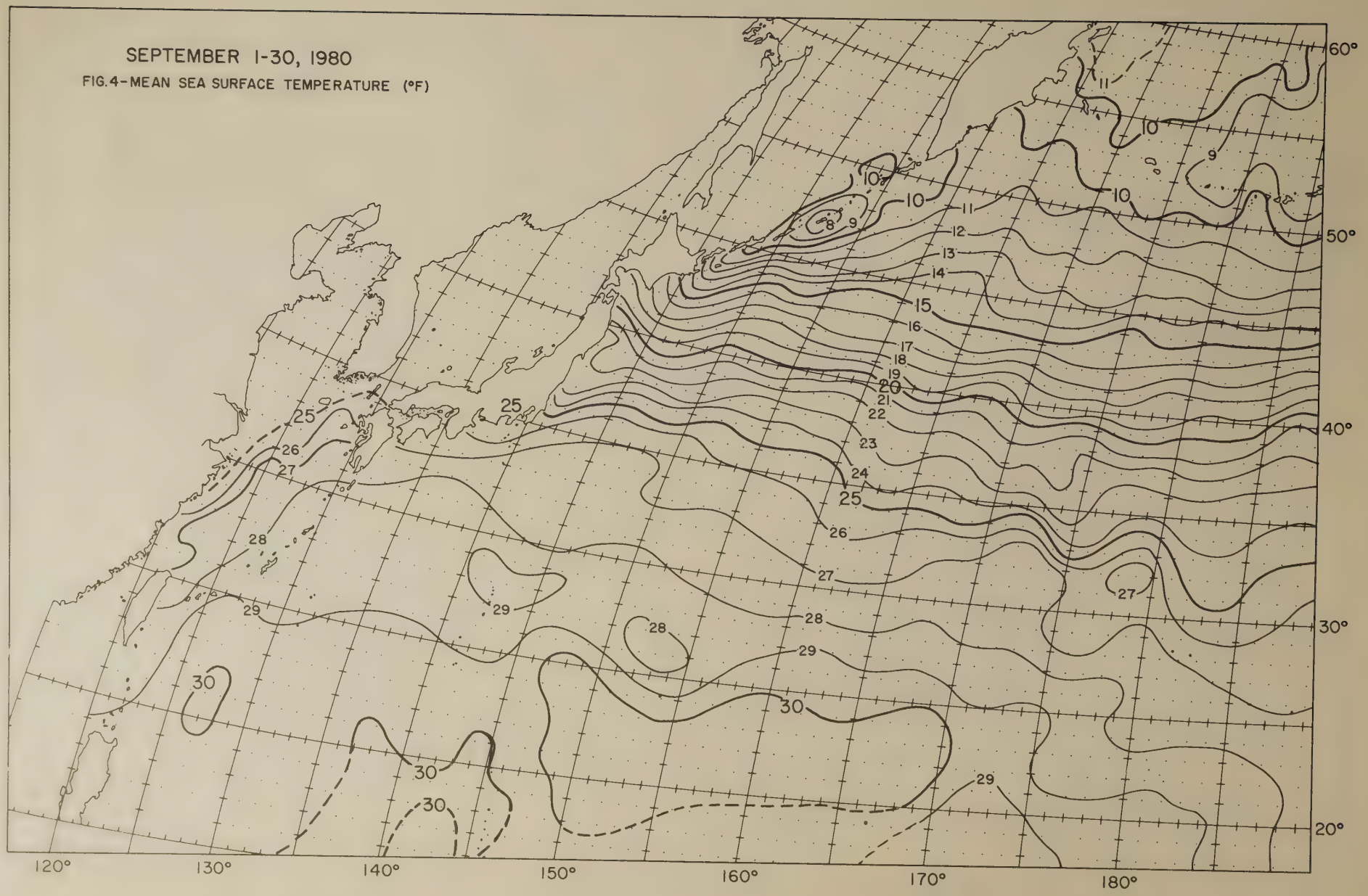

SEPTEMBER 1961–1980
FIG. 1 —OBSERVED MEAN VALUES
–0000– BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. / No. RESULTANT WIND SPEED (KTS.) / AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.
1008
1012
1016
1020
1016
1012
0

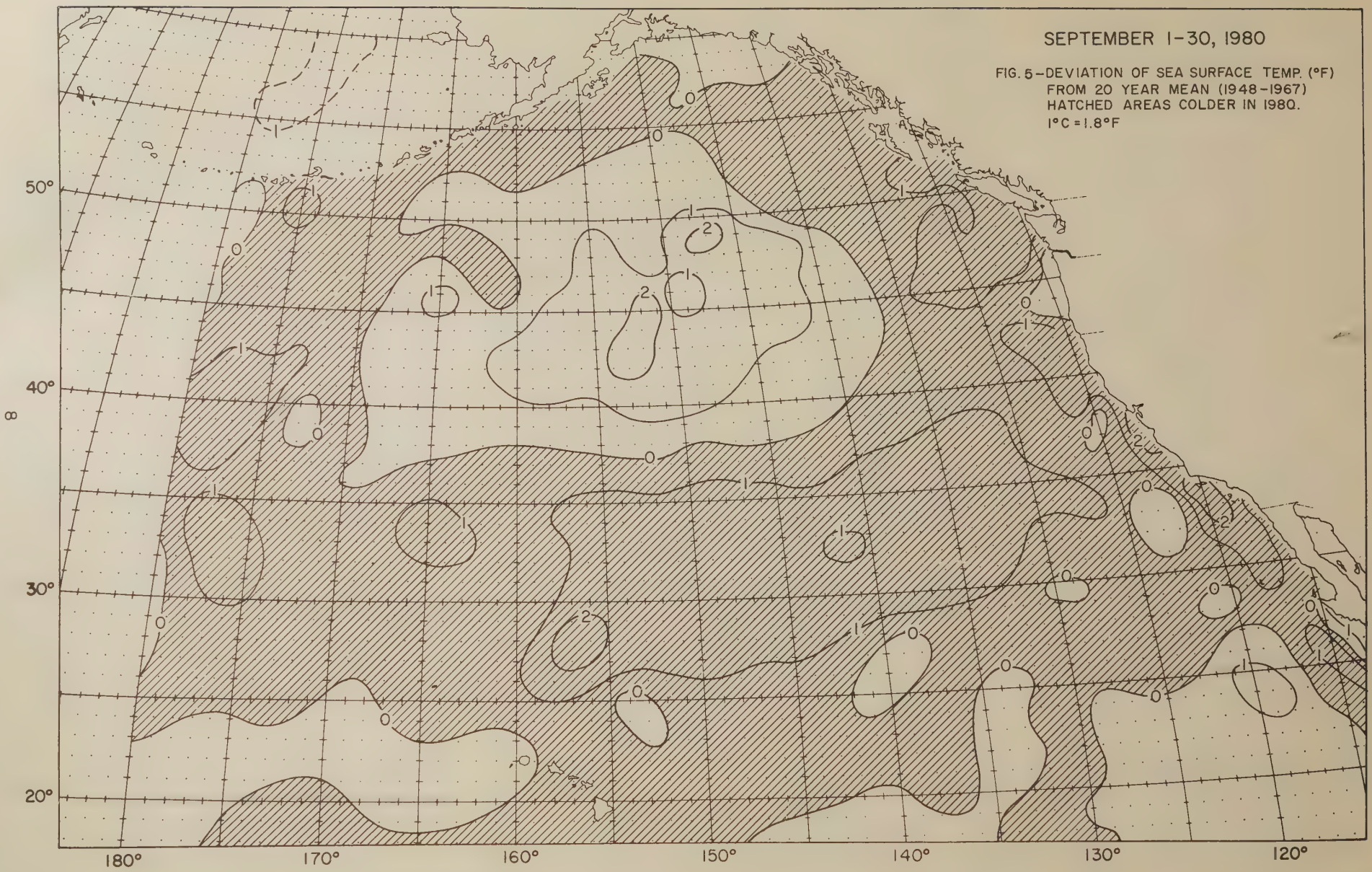

SEPTEMBER 1980
FIG. 2 — OBSERVED VALUES
-0000- BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1008
1008
1012
1016
1020
1016
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

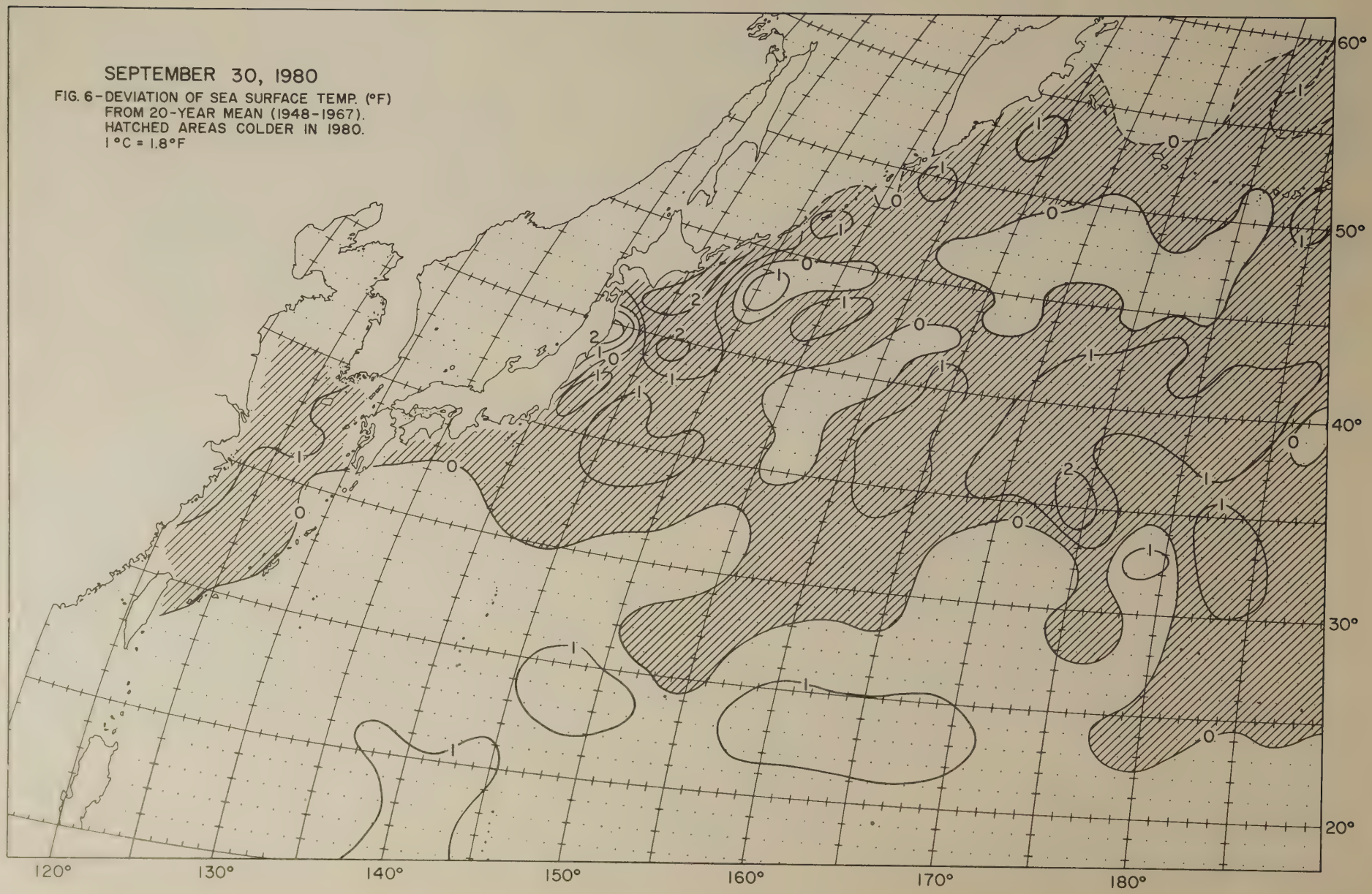

SEPTEMBER 1-30, 1980
FIG.3-MEAN SEA SURFACE TEMPERATURE (°C)
11.2
11.9
12.6
13.0
12.8
13.5
18.8
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°

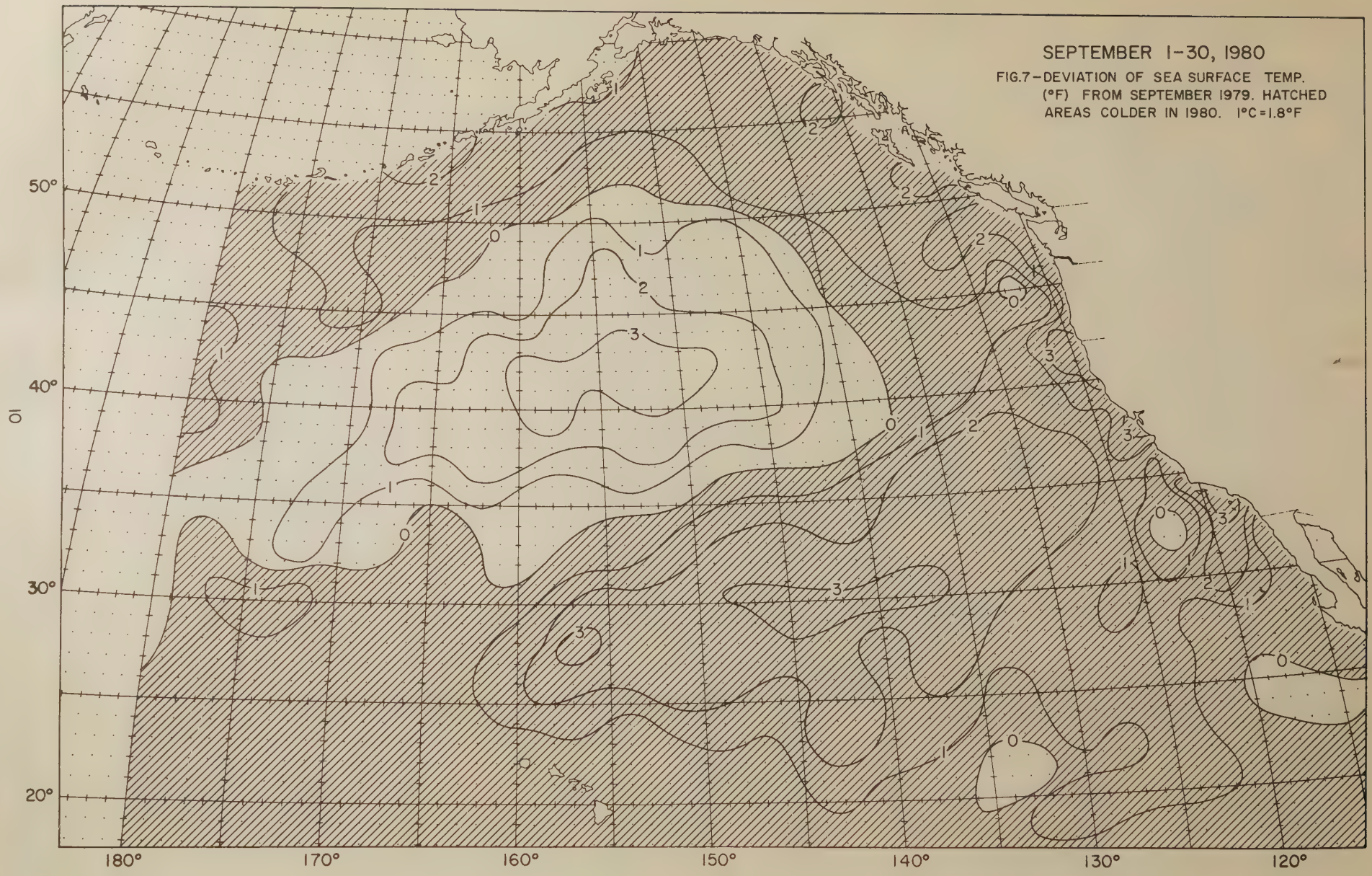
SEPTEMBER 1-30, 1980

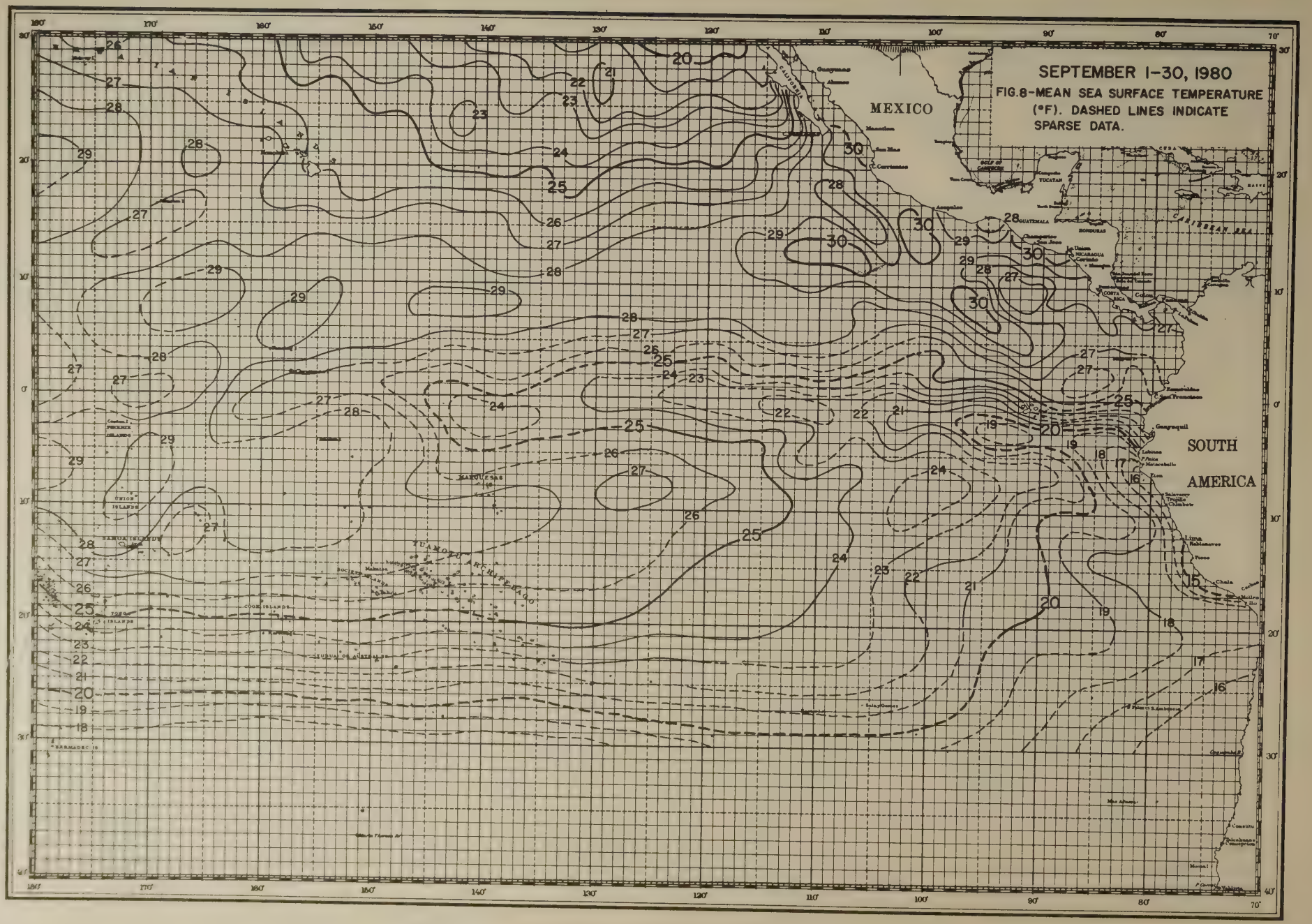
FIG.4-MEAN SEA SURFACE TEMPERATURE (°F)

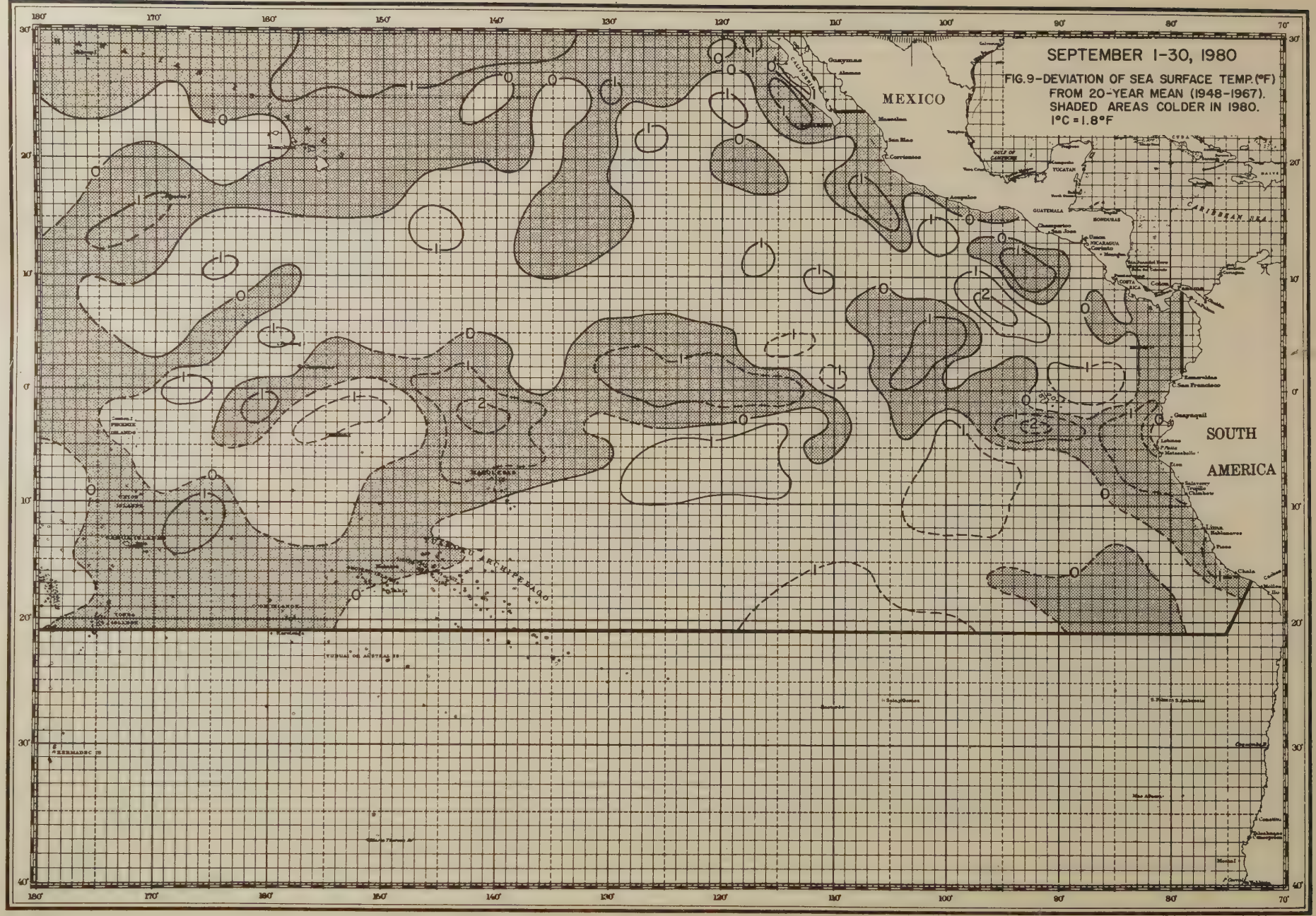



SEPTEMBER 1-30, 1980
FIG. 5-DEVIATION OF SEA SURFACE TEMP. (°F) FROM 20 YEAR MEAN (1948-1967) HATCHED AREAS COLDER IN 1980.
1°C = 1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


SEPTEMBER 30, 1980
FIG. 6 - DEVIATION OF SEA SURFACE TEMP. (°F) FROM 20-YEAR MEAN (1948-1967). HATCHED AREAS COLDER IN 1980.
1 °C = 1.8°F
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°


SEPTEMBER 1-30, 1980
FIG.7-DEVIATION OF SEA SURFACE TEMP. (°F) FROM SEPTEMBER 1979. HATCHED AREAS COLDER IN 1980. 1°C=1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


SEPTEMBER 1-30, 1980
FIG.8-MEAN SEA SURFACE TEMPERATURE (°F). DASHED LINES INDICATE SPARSE DATA.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
TUAMOTU ARCHIPELAGO
SOCIETY ISLANDS
COOK ISLANDS
SAMOA (NAVIGATORS)
UNION ISLANDS
PHOENIX ISLANDS
MARQUESAS
BERMUDEZ IS
Guayaquil
Lima
Callao
Chala
Iquique
Arica
Antofagasta
Coquimbo
Valparaiso
San Francisco
Salaverry
Trujillo
Chimbote
Paita
Talara
Manzanillo
Acapulco
Guaymas
Mazatlan
Cabo San Lucas
Cristobal
Panama
Puerto Limon
Belize
Progreso
Veracruz
Tampico
Havana
CUBA
HAITI
YUCATAN
GULF OF CAMPECHE
CALIFORNIA
Guadalajara
Monterrey
Nuevo Laredo
Corpus Christi
Galveston
New Orleans
Mobile
Tallahassee
Key West
Miami
Charleston
Norfolk
Cape Hatteras
Cape Fear
Cape Lookout
Cape Henry
Atlantic City
New York
Boston
Halifax
Sydney
Bermuda
Nassau
Kingston
Port au Prince
Santiago
Guantanamo
Bahia Honda
Cienfuegos
Matanzas
Key West
Tampa
Jacksonville
Savannah
Charleston
Wilmington
Norfolk
Cape Hatteras
Cape Fear
Cape Lookout
Cape Henry
Atlantic City
New York
Boston
Halifax
Sydney
Bermuda
Nassau
Kingston
Port au Prince
Santiago
Guantanamo
Bahia Honda
Cienfuegos
Matanzas


SEPTEMBER 1-30, 1980
FIG.9-DEVIATION OF SEA SURFACE TEMP.(°F) FROM 20-YEAR MEAN (1948-1967). SHADED AREAS COLDER IN 1980. 1°C = 1.8°F
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CALIFORNIA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
CUBA
YUCATAN
GALAPAGOS ARCHIPELAGO
180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
10°
20°
30°
40°

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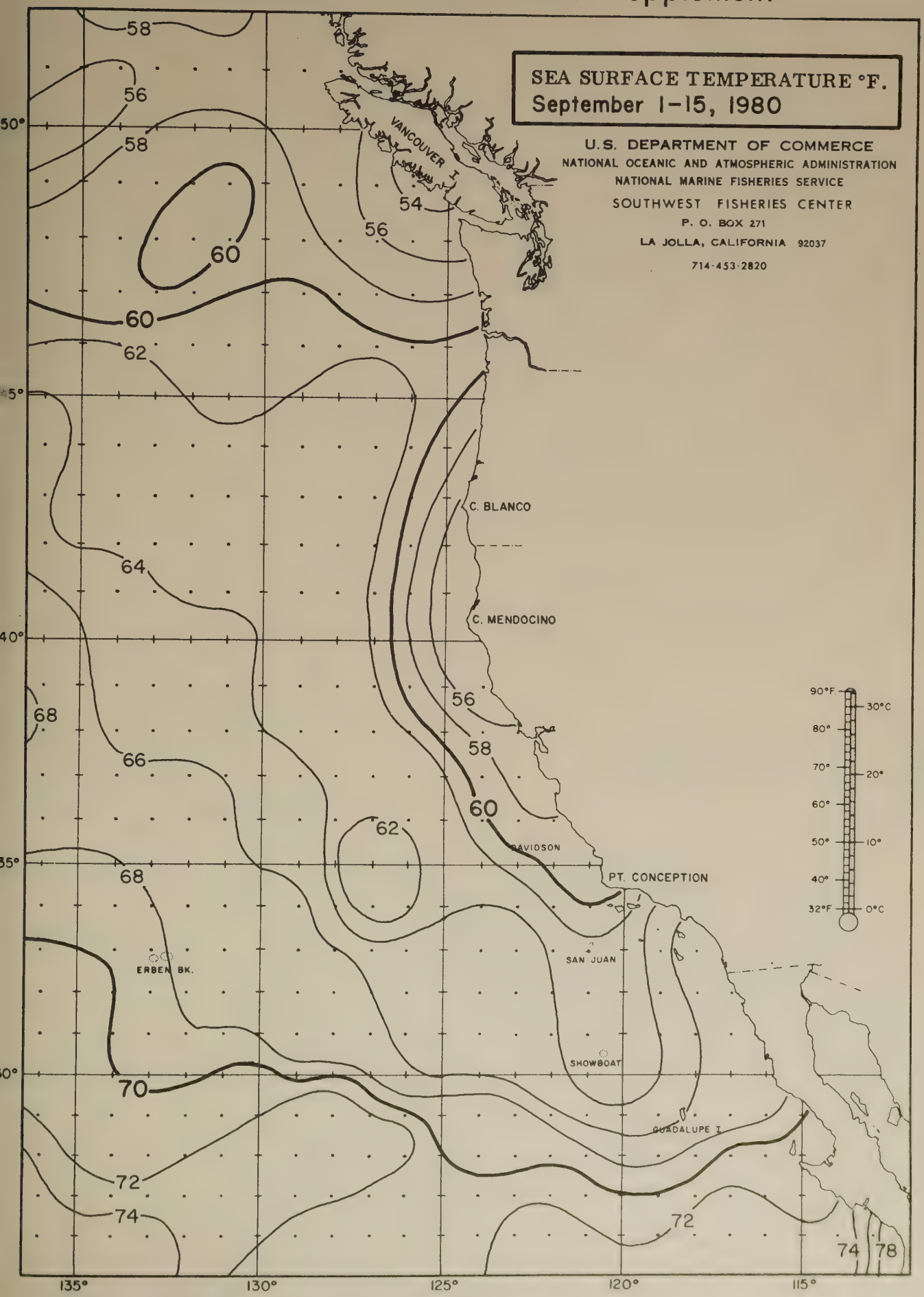

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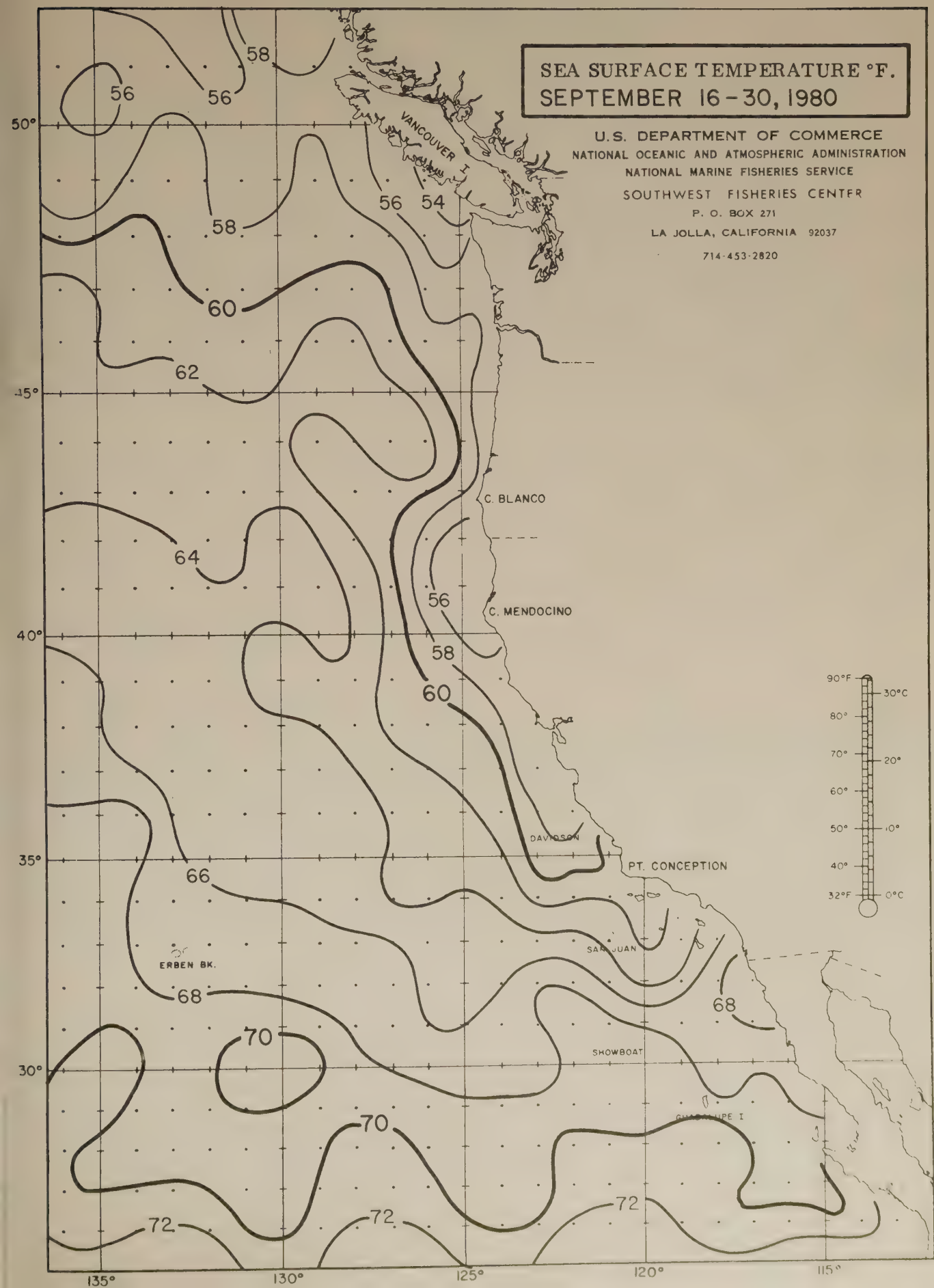

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Bulletin No. 80-6

GOOD ALBACORE CATCHES MADE OFFSHORE: U.S. BOATS FISH OFF CANADA

Good albacore catches were made offshore California and Oregon during the last two weeks of August and U.S. boats fished off Canada after the U.S. and Canada signed an interim albacore fishing agreement for 1980.

Most of the albacore vessels were located 250-350 miles west of San Diego, 150-250 miles west-southwest of Point Sur, 400-500 and 800-1100 miles off the northern Oregon coast, and between Vancouver Island and the Queen Charlotte Islands. Baitboats in the waters off southern and central California had better fishing success than jigboats; but, jigboats had catches which averaged approximately 1/2-1 ton per day while continually working offshore of southern California during the second half of August. Off central California, top scores were 140-180 fish on a few days in the last week of August. Fishing offshore central California, however, had become very spotty by the end of August. Meanwhile, boats that fished 30-40 miles off Morro Bay and Monterey had some days of generally less than 40 fish a day. Fishing off central and southern California was, predominantly, on 20-30 pound (9.1-13.6 kg) albacore and, as in the 1979 season, 12-18 pound (5.5-8.2 kg) albacore are not being caught in large quantities.

Seas remained rough off northern California and southern Oregon and little fishing effort has been expended in these areas; catches have also been poor. The American Fishermen's Research Foundation's chartered vessel, Inez C, worked from 425 miles west of Heceta Head southwestward to Eureka from August 16-21, but reported small scores of 0-2 fish a day in 60-61.5° F (15.6-16.4° C) sea-surface water temperatures. The Inez C. completed its charter in Eureka on August 21.

Albacore catches were made about 1100 miles west of northern Oregon in August by jigboats returning from the mid-North Pacific fishery and because catches were good, boats from the coast also entered this area. Approximately 50 boats fished eastward between 800-1100 miles off northern Oregon where many catches of 200-800 fish a day were made. Another group of boats was 400-500 miles off northern Oregon and on good days of fishing caught 200-400 albacore a day. When catches in both offshore areas decreased in the last few days of August, vessels from these areas returned to port or headed north. Albacore in the Pacific Northwest averaged 12-13 pounds (5.5-5.9 kg).

In the last week of August some 40-150 fish catches were reported in the Dellwood Knolls area between Vancouver Island and the Queen Charlotte Islands. Earlier in the month, small, scattered catches were made by Canadian vessels in this area.

During the last half of August, sea surface temperatures (SSTs) were 2° to 4° F (1.1° to 2.2° C) below normal along the west coast from Vancouver Island to San Francisco Bay and westward between 33° N and 45° N where coastal upwelling and strong surface winds offshore caused extensive ocean mixing. South of a line from Point Conception to 30° N, 135° W, SSTs were above normal. Improved temperature edges developed offshore 100 to 200 miles from Washington and from Cape Blanco southward to San Juan Seamount because of strong coastal upwelling.

Based on the National Weather Service outlook for September, the Eastern Pacific high pressure center is expected to remain about 1000 miles off the northern California coast with a ridge extending northeast into Washington for most of the first half of September. Storm centers should continue to cross the coast of British Columbia with heavier weather fronts than in August extending southward into northern California. Strong surface winds and rough seas can be expected off the west coast from Cape Blanco to Monterey Bay. Off the coast of Washington and south of the Davidson Seamount, surface winds and seas should be lighter than in August. SSTs west of 127° W will reflect seasonal increases. The best temperature edges are expected in the same areas as shown in the SST chart.

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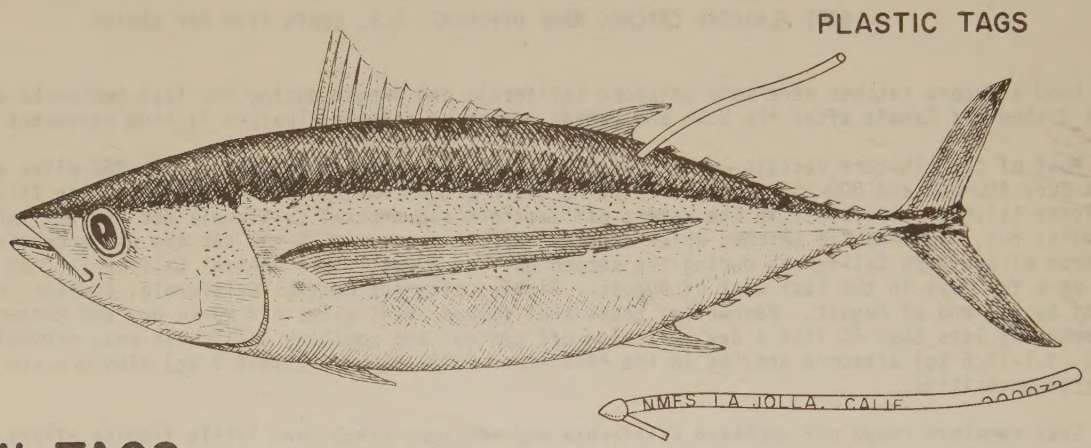
We here at the National Marine Fisheries Service wish to thank you for your continued interest in and support for Fishing Information and urge you to lend similar support to the new National Weather Service/National Environmental Satellite Service publication.

September 3, 1980

Staff, Albacore Fisheries Program
R. Michael Laurs, Leader

$ REWARD $

FOR ALBACORE TUNA TAGS



YELLOW TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 2.00 FOR EACH YELLOW TAG RECOVERED. (NO NEED TO RETURN FISH)

RECORD:

- WHERE
- WHEN
- HOW

} *FISH WAS CAUGHT*

- LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

FORWARD TO NMFS ADDRESS ON TAG

RED TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 50.00 FOR EACH RED TAG & FISH RETURNED. (FISH WITH TAG INTACT MUST BE RETURNE

RECORD:

- WHERE
- WHEN
- HOW

} *FISH WAS CAUGHT*

- LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

NOTIFY NMFS P.O. BOX 271, LA JOLLA, CA. TEL. (714) 453-2820

THE AMERICAN FISHERMEN'S RESEARCH FOUNDATION WILL AWARD CASH PRIZES FOR YELLOW & RED TAG NUMBERS DRAWN IN AN ANNUAL LOTTERY.

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
La Jolla, California 92038

Bulletin No. 80-7

MOST OF THE ALBACORE CATCHES PRODUCED IN THREE AREAS

Areas off Vancouver Island, northern Oregon and southern to central California produced most of the albacore catches during the first two weeks of September. Approximately 30-50 boats worked 50-110 miles west of Cape Cook, Vancouver Island, and in the Dellwood Knolls vicinity north of Vancouver Island. Except for about six days, weather conditions were good and scores were mostly 20-100 fish a day for boats fishing off Cape Cook; catches were smaller in the Dellwood Knolls vicinity. Albacore of 20-30 pounds (9.1-13.6 kg) predominated in these catches; however, some 13-15 pound (5.9-6.8 kg) fish were also caught. Because fishing was not as good as some boats wanted it to be, some of them, including most of the baitboats, left this area in the middle of the second week of September. Many of the boats headed south to about 400-500 miles west of the northern Oregon coast where spotty fishing was reported for most of September. Boats off the northern Oregon area had days of up to 200 fish and averaged about 100 fish per boat on a few days. The median size of these fish had also increased to 15 pounds (6.8 kg) from the 12-13 pound (5.5-5.9 kg) albacore caught in this location in August. By mid-September, however, fishing had become more spotty in this vicinity and, because a few boats had been catching albacore about 100-200 miles farther offshore, fishermen were planning to work as far west as 1,000 miles off the Oregon coast.

Catches off central and southern California were scattered. Sportboats reported some fishing 40-60 miles west of Morro Bay and commercial boats caught albacore 350-400 miles off San Diego, 60 and 180 miles west of Monterey and 80 miles off Point Arena. Commercial catches were mostly 20-60 fish per boat with occasional scores of more than 100 fish. Seas were generally rough offshore central California for most of September. Albacore caught in central California waters averaged 25 pounds (11.4 kg) in the southern region and 12 pounds (5.46 kg) off Pt. Arena. Small albacore of 6 pounds (2.7 kg) were also being caught during the second week of September in the offshore areas. Boats offshore southern and central California reported large areas of scattered albacore; but, at the end of the second week of September, boats off San Diego headed north or returned to port and boats offshore Monterey worked eastward because of small catches. Fishing remained spotty and catches did not improve as the boats fished toward the coast.

Elsewhere, fishing was poor nearshore from Cape Mendocino, California to the northern tip of Vancouver Island. Boats that left Washington and Oregon ports to fish off Canada caught few albacore until reaching the Cape Cook area and boats leaving the Cape Cook vicinity to fish offshore northern Oregon found very few fish offshore Washington.

From September 1-15, 1980 sea surface temperatures (SSTs) were 1°F to 2°F (1.1° to 2.2°C) below normal along the U.S. west coast from Cape Blanco to Baja California and westward to 130°W. Above normal SSTs were found along the coast from Washington to northern Oregon, offshore more than 300 miles north of 43°N and also south of 30°N. Coastal upwelling was most pronounced from southern Oregon to central California where good temperature edges existed offshore (see chart). Fishing weather and strong temperature edges persisted west of Davidson and San Juan seamounts also.

The National Weather Service outlook for the last half of September indicates that the eastern Pacific high pressure center will slowly shift southeastward with a strong ridge line extending from the high center eastward to the coast between northern California and Oregon. The high pressure system will be less intense and offshore northerly winds should be lighter than during the first half of September. Weather fronts are expected to cross the coastal region from British Columbia to northern California with greater frequency and heavier rains and squalls than 15 days ago. However, between weather frontal passages, fishing weather offshore from Vancouver Island to Oregon should be good. Between Cape Blanco and Cape Mendocino expect strong northeasterly winds along the coast at times when the high pressure ridge builds up over Oregon. Farther south along the coast of California, good temperature edges will be found between Davidson and San Juan seamounts. Fishing weather off southern California will be better than off central and northern California where strong northerly winds and rough seas will persist, especially between 38°N and 43°N out to 135°W. SSTs will be above normal south of 30°N and west of Washington 200-500 miles. Central California coastal region can expect SSTs to be below normal.

* * * NOTICE TO SUBSCRIBERS * * *

Publication of Fishing Information and its fifteen day supplements by the National Marine Fisheries Service will cease with the September 1980 issue. Beginning with the October issue, responsibility for the preparation of the types of charts currently published in Fishing Information will be transferred to the National Weather Service and the National Environmental Satellite Service. Scientists of the Fishing Information staff are currently working with National Weather Service and National Environmental Satellite Service personnel to ensure that the follow-on publication to Fishing Information meets user needs and that a smooth transition takes place.

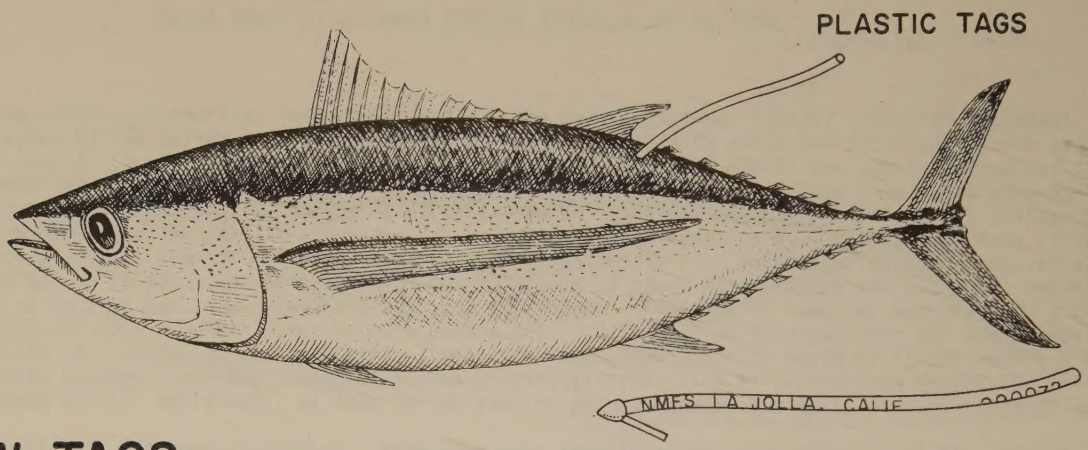
We here at the National Marine Fisheries Service wish to thank you for your continued interest in and support for Fishing Information and urge you to lend similar support to the new National Weather Service/National Environmental Satellite Service publication.

Staff, Albacore Fisheries Program
R. Michael Laurs, Leader

September 16, 1980

$ REWARD $

FOR ALBACORE TUNA TAGS



YELLOW TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 2.00 FOR EACH YELLOW TAG RECOVERED. (NO NEED TO RETURN FISH)

RECORD:

- ▶ WHERE
- ▶ WHEN
- ▶ HOW

} *FISH WAS CAUGHT*

- ▶ LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

FORWARD TO NMFS ADDRESS ON TAG

RED TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 50.00 FOR EACH RED TAG & FISH RETURNED. (FISH WITH TAG INTACT MUST BE RETURNE

RECORD:

- ▶ WHERE
- ▶ WHEN
- ▶ HOW

} *FISH WAS CAUGHT*

- ▶ LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

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